

LED INDICATIONS FOR THE MODICON MOMENTUM PLC

The Modicon Momentum PLCs used for RHIC consist of three modules. The Processor Adapter (171 CCC 980 20) is the top module, and houses the CPU and Ethernet port. The Modbus Plus Option Adapter (172 PNN 210 22) is the middle module, and provides the Modbus Plus interface. The bottom module (170 ADI 340 00) is the I/O base, providing power distribution and I/O capabilities. (I/O not used)

There are three LED indicators located on top of the Processor Adapter, and one LED indicator located on top of the Modbus Plus Option Adapter. The three LEDs found on the Processor are labeled as follows:

- 1) CPU RUN
- 2) LAN ACT(IVE)
- 3) LAN ST(ATUS)

The LED found on top of the Modbus Plus Option Adapter is labeled:

- 4) MB+ ACT(IVE)

The LED functions are described below:

CPU RUN

Upon power up, a single flash indicates good health. After the ladder logic program has been transferred from Flash memory to conventional memory, the CPU will begin solving logic. Depending on the size of the program, this may take up to 60 seconds or more. Once the PLC is in run mode, **the CPU RUN LED should be on continuously**. If it flashes an error pattern, (2 or more blinks followed by a pause), see the “M1 Processor Adapter and Option Adapter User Manual”, Appendix B, for error descriptions. (The Modicon part number for this manual is 870 USE 101 00 version 3)

LAN ACT

After power up it takes a few seconds for this LED to begin its normal function. If there is activity at the Ethernet port, **the LAN ACT LED should be blinking rapidly**. The more activity, the more rapidly the LED blinks. If there is no Ethernet Activity, the LED will be off.

LAN ST

After power up it takes a few seconds for this LED to begin its normal function. A fast blink indicates normal Ethernet initialization. After the initialization period, **the LAN ST LED should be on continuously**. If not, see below:

- On continuously – Normal operating mode
- 3 flashes followed by a pause - No 10BASE-T link pulse detected. (Check cable and hub)
- 4 flashes followed by a pause - Duplicate IP address found
- 5 flashes followed by a pause - No IP address available
- Off continuously - No valid MAC address

MB+ ACT

After power up it takes a few seconds for this LED to begin its normal function. The LED will then blink at a rate of 1 flash/second. After being in this state for 5 seconds, **the MB+ ST LED should blink continuously at a rate of 6 flashes/second.** If not, see below:

- 6 flashes/second – Normal operating mode.
- 1 flash/second – This is the state just after power up or after exiting the 6 flash/second mode. The PLC is monitoring the Modbus Plus network and is building a table of active nodes.
- 2 flashes, then Off for 2 seconds – The PLC detects the token being passed among other nodes, but never receives the token. Check the network for an open circuit or defective termination.
- 3 flashes, then Off for 1.7 seconds – The PLC is not detecting any tokens being passed among the other nodes. Check the network for an open circuit or defective termination.
- 4 flashes, then Off for 1.4 seconds – The PLC has detected a valid message from a node using a network address identical to its own.
- On continuously – Invalid node address.
- Off continuously – Possible fault with Modbus Plus Option Adapter.